SYSY Antibodies

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Synaptophysin1/2 G95

Cat.No. 101 102; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 10000 **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 (see remarks) **IHC**: 1 : 500 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 10000
Immunogen	Full-length native rat Synaptophysin (UniProt Id: P07825)
Reactivity	Reacts with: mouse (Q62277), rat (P07825), human (P08247), Guinea pig, rabbit. Other species not tested yet.
Specificity	Recognizes Synaptophysin1 and 2 (Synaptoporin, p38-2).
Remarks	**ICC**: The following fixatives are possible: 4% formaldehyde/PFA, methanol.

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

Synaptophysin1, also referred to as **p38-1**, is a membrane glycoprotein of synaptic vesicles that is ubiquitously expressed in all neurons and in many endocrine cells. It is currently the most widely used marker for nerve terminals and probably the best marker for the pathologist in differentiating neuroendocrine tumors.
Synaptophysin1 has four transmembrane domains with both N- and C-terminus facing the cytoplasm. It binds to synaptobrevin1 and synaptobrevin2 in detergent extracts but its function has not been elucidated completely. It forms a complex with dynamin at high Ca^{2+} concentration suggesting an involvement in synaptic vesicle endocytosis. As typical for synaptic vesicle proteins, synaptophysin1 represents a small protein family with two additonal members, synaptoporin and panthophysin.
Synaptoporin, also known as **synaptophysin2** and **p38-2**, is highly homologous to synaptophysin1 but encoded by a different gene. Like synaptopysin1, synaptoporin contains four transmembrane regions and a short cytoplasmic tail. Unlike synaptophysin1, it is not glycosylated.
The distributions of synaptophysin1 and synaptoporin are different. Synaptophysin1 is more uniformly expressed whereas synaptoporin is particularly enriched in mossy fiber synapses in the hippocampus. It is thus an excellent marker for subsets of synapses.

Selected References for 101 102

A 38,000-dalton membrane protein (p38) present in synaptic vesicles.
Jahn R, Schiebler W, Ouimet C, Greengard P
Proceedings of the National Academy of Sciences of the United States of America (1985) 8212: 4137-41. . **WB, ICC; tested species: rat**

Synaptic vesicle fusion promotes phosphatidylinositol 4-phosphate synthesis for efficient synaptic transmission.
Yoshida T, Kawano H, Omi J, Hori T, Kobayashi Y, Saitoh N, Aoki J, Takamori S
Cell reports (2025) 445: 115634. . **WB, ICC; tested species: mouse**

Chronic blockade of glutamate receptors enhances presynaptic release and downregulates the interaction between synaptophysin-synaptobrevin-vesicle-associated membrane protein 2.
Bacci A, Coco S, Pravettoni E, Schenk U, Armano S, Frassoni C, Verderio C, De Camilli P, Matteoli M
The Journal of neuroscience : the official journal of the Society for Neuroscience (2001) 2117: 6588-96. . **WB, ICC; tested species: rat**

Synaptophysin--a common constituent of presumptive secretory microvesicles in the mammalian pinealocyte: a study of rat and gerbil pineal glands.
Redecker P, Bargsten G
Journal of neuroscience research (1993) 341: 79-96. . **IHC; tested species: mouse**

Synaptophysin immunoreactivity in the mammalian endocrine pancreas.
Redecker P, Jörns A, Jahn R, Grube D
Cell and tissue research (1991) 2643: 461-7. . **IHC-P; tested species: human,mouse,rabbit**

Parkinson Sac Domain Mutation in Synaptojanin 1 Impairs Clathrin Uncoating at Synapses and Triggers Dystrophic Changes in Dopaminergic Axons.
Cao M, Wu Y, Ashrafi G, McCartney AJ, Wheeler H, Bushong EA, Boassa D, Ellisman MH, Ryan TA, De Camilli P
Neuron (2017) 934: 882-896.e5. . **ICC; tested species: mouse**

cAMP-dependent protein kinase mediates activity-regulated synaptic targeting of NMDA receptors.
Crump FT, Dillman KS, Craig AM
The Journal of neuroscience : the official journal of the Society for Neuroscience (2001) 2114: 5079-88. . **ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/101102 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at **4°C** before reconstitution. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.